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DESCRIPTIONS OF FIVE NEW SPECIES OF CHALCIDOID- DEA, WITH NOTES ON A FEW DESCRIBED SPECIES (HYMENOPTERA)

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THIS paper contains descriptions of three new species of *Brachymeria* (one from Panama, one from Mexico, and one from Java), a new species of *Blepyrus* from Louisiana, and a new species of *Ooencyrtus* from Wyoming. All are described from reared material. The host record for the *Ooencyrtus* is especially interesting, since the species is parasitic in eggs of the Mormon cricket. Synonymical and distributional notes for a few described species also are included.

Family CHALCIDIDAE

Genus BRACHYMERIA Westwood

BRACHYMERIA JAMBOLANA, new species

Tumidicoxoides jambolana (Girault, MS.) RAMAKRISHNA AYYAR, Proc. 3d Ent. meeting Pusa, p. 323, 1919 (1920).

Tumidicoxoides n. sp. (Girault) RAMAKRISHNA AYYAR, Spolia Zeylanica, vol. 13, part 2, p. 254, 1925.

T. V. Ramakrishna Ayyar published the Girault manuscript name *Tumidicoxoides jambolana* without description, listing the species as a parasite of *Carea subtilis* at Coimbatore, India. Subsequently he republished the parasite record, this time listing the parasite as *Tumidicoxoides* n. sp. Girault. So far as known the name has never been validated. The specimens that formed the basis for the Girault manuscript name are in the United States National Museum and represent part of the material used for the present description. The genus *Tumidicoxoides* was reduced to synonymy with *Chalcis* by

Girault,¹ but *Chalcis* of authors (not Fabricius), as now recognized, is *Brachymeria* Westwood, and it is in that genus that the species belongs.

Female.—Length 4.25 mm. Very similar to *Brachymeria euplocae* Westwood but differing by being somewhat smaller, by the lateral ocelli being approximately their own diameter from the eye margins, by the flagellar joints, except the first, all being slightly broader than long, by lacking entirely the tubercle on the inner ventral margin of the hind coxa, and by having the fore and middle tibiae immaculate yellow. Also very similar to *albotibialis* Ashmead from which it differs by having the tooth nearest the base of posterior femur smaller or at least no larger than some of the other teeth, by having the punctures on mesoscutum and scutellum more narrowly separated, by having the pits on hypopygium somewhat smaller and more numerous, by having the flagellar joints very slightly shorter, and by having the blackish band at base of posterior tibia shorter, this band usually embracing only about one-sixth the length of tibia.

Postorbital branch of the genal carina present and well developed; punctures of thoracic dorsum coarse and contiguous; apex of scutellum with the plate weakly emarginate medially; propodeum coarsely, irregularly rugose; abdomen subacute, ovate; first dorsal segment of gaster smooth and nearly bare dorsally but with the dorsolateral angles conspicuously hairy; following segments weakly shagreened with one or more conspicuous rows of hairs extending clear across the dorsum, the penultimate segment with moderately strong pits in addition to the shagreening; hind femur with rather weak, fine punctures, more or less shining, its ventral margin with 10 to 12 blunt teeth, the 3 teeth nearest base usually shorter than the others; postmarginal vein fully twice as long as stigmal vein.

Black; flagellum dark brown or black; palpi, tegulae, apical half of anterior femur, apical one-third of median femur, a large spot at apex of hind femur, anterior and median tibiae entirely, and all tarsi yellow; hind tibia yellow, with a narrow black or blackish band at extreme base and the carina along the margin black. Wings hyaline; marginal and stigmal veins dark. Hairs clothing the body grayish white and densest on front of head.

Male.—Unknown.

Type locality.—Coimbatore, India.

Type.—U.S.N.M. No. 20898.

Remarks.—The type and two paratypes, according to the labeling, were reared at Coimbatore, India, June 1, 1916, from a moth infesting "Jambolana." Since these specimens are the original Girault manuscript types, they are undoubtedly the specimens upon which Ayyar's

¹ Ins. Inscit. Menstr., vol. 14, p. 66, 1926.

record, cited in the synonymy, was based. According to this note the host was *Carca subtilis* (Walker) infesting *Eugenia jambolana*. Two additional paratypes from Coimbatore are labeled "Par. on *Danaïs*, 14-II, 1913, Ponniah coll." Six paratypes are from Buitenzorg, Java, reared in March 1932 from pupae of *Papilio agamemnon* Linnaeus, and six others from the same locality were reared from a lepidopterous pupa on *Ficus ampelas*, April 1, 1935, by Dr. Muller. Four paratypes (two of which were returned to the sender) were received in 1939 from C. J. H. Franssen, of the Institute for Plant Diseases, Buitenzorg, Java, reared in June 1936 from *Papilio agamemnon* by R. Awibowo. Five additional paratypes from Padang, Sumatra, were reared from *P. agamemnon* and received in 1918 from S. Leefmans.

BRACHYMERIA DISCRETA, new species

This species differs from all the previously described species of *Brachymeria* known to me by having on the dorsum of the scutellum a conspicuous, smooth, impunctate area that is slightly elevated and rounded posteriorly and terminates rather abruptly a little behind the middle of the scutellum. The species superficially resembles *B. fonscolombei* Dufour but may be distinguished by the longer and slenderer antenna, by the much shorter teeth on the hind femur, by the broadly arcuate emargination of the second segment of the gaster, by the conspicuous smooth area on the scutellum, and by the somewhat differently colored legs.

Female.—Length 4.75 mm. Antennae inserted on a line with lower extremities of eyes; scape rather long; flagellum moderately slender, nearly the same thickness throughout most of its length, the two apical joints of club tapered to a blunt point; first funicular joint about twice as long as broad, second and third funicular joints a little longer than broad, fourth to seventh joints quadrate or nearly so; club very slightly longer than the two preceding joints. Ocellular line distinctly a little more than half the longest diameter of a lateral ocellus. Head rugosely sculptured, the rugosity somewhat coarser laterad of the upper half of scrobe than elsewhere; post-orbital branch of genal carina present and complete; malar space less than half the eye height. Thorax punctate, the punctures on prescutum distinctly larger than those on scapulae; punctures on scutellum similar to those on posterior part of prescutum; carinate plate at apex of scutellum narrow and not emarginate; propodeum irregularly rugose, without well defined carinately bounded areas except adjacent to the spiracles; mesopleuron with femoral depression strongly transversely striated. Forewing with postmarginal vein about one-fourth as long as marginal; stigmal vein completely sessile and hardly half as long as postmarginal. Posterior femur nearly twice as long as broad, its outer surface closely punctate, its ventral

margin with about 9 or 10 unusually short, blunt, subequal teeth and with a slight tubercle on inner ventral margin. Abdomen pointed-ovate, about as long as head and thorax; first tergite perfectly smooth and bare except for a few hairs on dorsolateral margins, posterior margin straight; second tergite hairy and weakly shagreened dorso-laterally, polished and bare on middle of dorsum and on ventral half of lateral aspect, its posterior margin not straight but broadly arcuately emarginate medially; sides of third, fourth, and fifth tergites entirely sculptured and hairy, their dorsums more weakly sculptured and each with one more or less complete transverse row of hairs; posterior margin of third tergite very slightly, arcuately emarginate medially, that of fourth and fifth not emarginate; sixth tergite completely hairy and finely shagreened and with numerous shallow, indistinct punctures or pits; seventh tergite about as long as sixth, finely shagreened and hairy; ovipositor sheath barely extending beyond apex of seventh tergite.

General color black; scape reddish testaceous beneath, black or blackish above; pedicel and flagellum black; tegulae yellow; wings hyaline, venation dark brown; anterior and middle coxae black, posterior pair black outwardly but usually testaceous on inner side; femora varying from brownish testaceous to mostly black, with a pale-yellow spot at apex of each; tibiae likewise varying from brownish testaceous to black, the anterior and middle pairs yellowish at bases and apices and the posterior pair with a yellow spot on posterior face of each some distance behind the base and another at extreme apex; tarsi testaceous; abdominal sternites more or less testaceous.

Male.—Length 3.3 mm. Agreeing with the description of female except that the raised area on scutellum is less conspicuous, being smaller and not polished but very finely sculptured, the abdomen is about as long as thorax, the second tergite is not distinctly arcuately emarginate, the hind coxae are entirely black, and the sternites are black. The antennal flagella are missing from the only male specimen available; the scape is like that of the female.

Type locality.—Tamazunchale, San Luis Potosi, Mexico.

Type.—U.S.N.M. No. 55149.

Remarks.—Described from six females and one male received from Phil Rau under his note Nos. 1431 and 1436 and said to have been reared from nests of *Polistes instabilis* Saussure collected in the type locality, the parasites having emerged at Kirkwood, Mo., May 7 to 14, 1939.

BRACHYMERIA DISCRETOIDEA, new species

This is very similar to *discreta* but, so far as may be judged by the material at hand, seems to be sufficiently distinct to justify description as a different species.

Female and male.—Both sexes differ from *discreta* in the following particulars: The ocellocular line is less than half as long as the longest diameter of a lateral ocellus. The vertex is a little less strongly sculptured and when viewed from directly above seems to have a low but distinct ridge originating at the dorsal margin of the median ocellus and running laterad in front of each lateral ocellus nearly to the eye margin, where it curves downward along the inner orbit. (No such ridge is apparent in *discreta*.) The slightly elevated area is present on the scutellum but in this species is very finely sculptured. The femoral depression on the mesopleuron is not transversely striated but smooth. The propodeum is divided by coarse carinae or rugae into about 25 more or less distinct areas, the median one of which is ovate or elliptical in shape and extends from the base to the apex of the propodeum, while the others are irregular in shape and roughly arranged in series of three between the base and the apex of the propodeum. The stigmal vein is not completely sessile but very shortly petiolate. The color is very similar to that of *discreta*.

Anterior coxae black, middle pair almost entirely, and posterior pair beneath reddish testaceous; trochanters testaceous; anterior and middle femora blackish with their apices pale yellowish; hind femur mostly black with the base broadly testaceous and a large pale-yellow spot at apex; anterior and middle tibiae yellow at bases and apices, dark testaceous to blackish in the middle; posterior tibia black at extreme base, with a large yellow spot near base and another at apex, the rest reddish testaceous; tarsi testaceous; forewings very faintly tinged with fuscous; abdomen of female reddish beneath, of male entirely black. In all other respects agreeing with description of *discreta*.

Type locality.—Frijoles, Panama Canal Zone.

Type.—U.S.N.M. No. 55150.

Remarks.—Described from 15 females and 13 males reared in December 1923 by Wheeler and Zetek under Zetek No. 2352 from a nest of *Trigona amalthea* (Olivier), which was infested by an unidentified moth.

Family PTEROMALIDAE

Genus DIBRACHYS Foerster

DIBRACHYS CAVUS (Walker)

Pteromalus cavus WALKER, Ent. Mag., vol. 2, p. 477, 1835.

Dibrachys cavus (Walker) KURDJUMOV, Rev. Russe Ent., vol. 13, p. 11, 1913.—

GAHAN, Proc. Ent. Soc. Washington, vol. 30, p. 211, 1938.

Trichomalus trujilloi BLANCHARD, Rev. Chilean Hist. Nat., vol. 41, p. 178, 1937 (1938). (New synonymy.)

To the already long list of synonyms of this widely distributed species, as set forth by Kurdjumov in 1913 and amplified by Gahan in

1938, apparently should be added *Trichomalus trujilloi* Blanchard. Blanchard described *trujilloi* as a parasite of the oriental fruit moth in Uruguay.

H. L. Parker recently sent to the Bureau of Entomology and Plant Quarantine specimens that he stated were bred from this moth at Montevideo, Uruguay, by Mesa Carrion, and that had been identified as *Trichomalus trujilloi* by Blanchard. Parker recognized the Uruguayan parasite as probably *Dibrachys cavus* and requested that they be compared with material of that species in Washington. So far as I can see these specimens do not differ in any respect from *Dibrachys cavus*, and since they also agree perfectly with the description of *Trichomalus trujilloi* I have no hesitation in declaring the latter name a synonym.

Genus HYPsicAMARA Foerster

HYPsicAMARA LACHNI (Ashmead), new combination

Pachycrepis lachni ASHMEAD, TRANS. AMER. ENT. SOC., vol. 14, p. 193, 1887.

The types of *Pachycrepis lachni* Ashmead, which are in the United States National Museum collection, do not have complete parapsidal grooves and therefore do not belong in the genus *Pachycrepis*. The parapsidal grooves are present only on the anterior one-half of the mesonotum. In this respect, as well as in all other generic characters, this species seems to agree with *Hypsicamara* Foerster as represented by *H. ratzeburgi*, the genotype, of which I have seen specimens in the Naturhistorisches Museum in Vienna, Austria, identified by Gustav Mayr.

Hypsicamara is very similar to *Pachyneuron* Walker, differing only by having a slightly longer and slenderer marginal vein, which, although distinctly thickened, is nearly uniform in width throughout its whole length, and by having the abdomen in both sexes subcylindrical and distinctly narrower than the thorax. The genus may have to be synonymized with *Pachyneuron* eventually.

Ashmead's types of *Hypsicamara lachni* were reared from a pine aphid (*Lachnus australis* Ashmead) at Jacksonville, Fla.

I have recently identified as *H. lachni* the following material received from Clyde F. Smith, of Ohio State University, and reared by him in connection with an investigation of the parasites of various aphids: 3 specimens reared from aphids on *Pinus virginiana* collected in Hocking County, Ohio, June 26, 1938; 19 specimens from aphids on *Salix*, Columbus, Ohio, June 19 and July 7, 1938; 5 specimens from an unidentified host collected at Mink Creek, Idaho, July 18, 1937; and 6 specimens taken at Beaver Creek, Utah, July 25, 1937. Still more recently 6 specimens of what appears to be the same species were received through O. Peck, reared July 1, 1932, from aphids on *Abies balsamea*, taken at Fredericton, New Brunswick, Canada, by R. E. Balch.

Family APHELINIDAE

Genus ABLERUS Howard

ABLERUS PERSPECIOSUS Girault

Ablerus perspiciosus GIRAULT, Ann. Ent. Soc. Amer., vol. 9, p. 292, 1916.

Azotus silvestrii COMPERE, Univ. California Publ. Ent., vol. 4, p. 9, 1926. (New synonymy.)

The types of *Ablerus perspiciosus* Girault and *Azotus silvestrii* Compere in the United States National Museum collection have been compared and found to agree completely. *A. perspiciosus* was described from specimens reared from *Diaspis pentagona* Targioni taken at Nishigahara, Japan, and *A. silvestrii* from specimens supposedly reared from *Chrysomphalus aonidum* (Linnaeus) taken at Shanghai, China.

Two specimens, determined by Girault as *Ablerus perspiciosus*, are in the United States National Museum collection, reared from *Diaspis pentagona* at Washington, D. C., in October 1913 by R. A. Cushman. One specimen, also now in the National Museum collection, was recently received from W. J. Schoene, of the Virginia Agricultural Experimental Station at Blacksburg, Va., who stated that it had been reared from *D. pentagona* but did not indicate the exact locality where the scale was taken.

Family ENCYRTIDAE

Genus BLEPYRUS Howard

BLEPYRUS SACCHARICOLA, new species

This species differs from typical *Blepyrus* in some respects. The frons is distinctly narrower than in *B. insularis* (Cameron), the ocellar triangle is acute, and the sculpture of the mesoscutum and scutellum is distinctly finer and more granulose. In other respects the female differs only slightly from *insularis*. The antenna of the male, however, is quite unlike that described for *insularis* by Timberlake.² According to Timberlake the funicle in the male of *insularis* has only three joints and the club is very greatly enlarged and solid. In the present species the male antenna has six distinct funicular joints and a club that is only slightly thicker than the last funicular joint, subcylindrical, obliquely truncate at apex, and distinctly 3-jointed. The male antenna somewhat resembles that in *Zarhopalus*, but the venation is different, and the scape of the female is not distinctly expanded. The species is also similar to *Euryrhopalus* in many respects but differs in the shape of the head, in the longer marginal vein, and in the antenna of the male.

² Proc. Hawaiian Ent. Soc., vol. 5, p. 171, 1922.

Female.—Length 2 mm. Head menisciform, as wide as thorax; frons narrow, the frontovertex approximately four times as long as broad, narrowest at front ocellus, expanding slightly below this point, and sharply expanded above the lateral ocelli; ocellar triangle acute; anterior ocellus about its own diameter from eye margins; lateral ocelli less than their own diameter from eyes; eyes large and conspicuously hairy; surface of frons with small, close, shallow punctures none of which are distinctly umbilicate; face and cheeks very finely reticulate-punctate, the sculpture somewhat finer than that of frons; scrobes subtriangular, not deep; malar space equal to approximately one-third eye height; head, in lateral view, moderately thin, rounded in front, frons not prominent.

Antennae inserted at clypeus; scape subcylindrical, very slightly broadened medially, not nearly reaching to front ocellus; pedicel a little more than twice as long as broad; funicle six-jointed, all the joints transverse, and successively increasing in width from first to last; club very large, fully as long as funicle and distinctly much wider than the last funicle joint, oval, rounded at apex, and distinctly 3-jointed. Thorax short and broad, only a little longer than broad; pronotum strongly transverse, opaquely sculptured; mesoscutum fully twice as broad as long, very finely and densely reticulate punctate, subopaque, and clothed with short brownish hairs; scutellum flat, subtriangular, very finely and evenly punctate, the surface completely mat and clothed with short dark-colored hairs; axillae touching on median line and sculptured like scutellum; pleura finely lineolate, slightly shining; propodeum short, nearly smooth but with faint reticulation. Forewing reaching well beyond apex of abdomen, nearly two and one-half times as long as broad, evenly ciliated basad of fenestra as well as elsewhere on disk; marginal vein about three times as long as thick, stigmal nearly twice as long as marginal, postmarginal distinctly longer than stigmal; hind wing reaching about to apex of abdomen, and about half as broad as forewing. Legs rather long; median tibiae a little longer and thicker than posterior tibiae; spur of median tibia about three-fourths as long as basal joint of tarsus; median tarsus moderately thick, tapering slightly toward apex, the under side of first segment hairy but without distinct spines. Abdomen broadly sessile, about as long and as broad as thorax, subtriangular, rounded at apex, weakly reticulated, somewhat shining; cerci located a little before the middle; ovipositor concealed.

General color deep black; mesoscutum dull metallic green; scape, anterior and median tibiae apically, posterior femora apically, posterior tibiae entirely, and all tarsi reddish testaceous; wings hyaline, venation brownish testaceous; flagellum black.

Male.—Length 1.6 mm. Antennal scape somewhat fuscous; flagellum clavate but not strongly so; pedicel about twice as long as broad;

funicle six-jointed, the joints all wider than long, successively increasing slightly in width and length, the sixth joint not quite twice as wide as first and about twice as broad as long; club not quite so long as funicle, scarcely broader than last funicle joint, subcylindrical, obliquely truncate at apex, and very indistinctly 3-jointed. Posterior femora entirely and their tibiae for the most part blackish. Otherwise like the female.

Type locality.—Franklin, La.

Type.—U.S.N.M. No. 55151.

Remarks.—Female holotype and three female paratypes received from J. W. Ingram and said to have been reared from *Pseudococcus* sp. on sugarcane taken at Franklin, La. Allotype male reared from the same host at Thibodeaux, La., October 28, 1928, by E. K. Bynum, and one paratype female reared by the same entomologist from similar material collected at Gainesville, Fla.

Genus EURYRHOPALUS Howard

Euryrhopalus HOWARD, Proc. U. S. Nat. Mus., vol. 21, p. 237, 1898.

Synaspidia TIMBERLAKE, Proc. Hawaiian Ent. Soc., vol. 5, p. 397, 1924. (New synonymy.)

The type of *Euryrhopalus schwarzi* Howard (genotype of *Euryrhopalus*) and paratypes of *Synaspidia pretiosa* Timberlake (genotype of *Synaspidia*) have been compared and found to agree in all generic characters. The two species are extremely similar but may be distinguished, for the present at least, by the fact that *schwarzi* is slightly the larger, with the forewing distinctly infumated behind the marginal vein, the hind wing distinctly more than half as broad as the forewing and forming a broad but distinctly acute angle at its apex, while the forewing of *pretiosa* is without distinct infuscation and the hind wing is not more than half the width of the forewing with its apex more rounded. Otherwise they seem to be practically indistinguishable.

Genus OOENCYRTUS Ashmead

OOENCYRTUS ANABRIVORUS, new species

The female of this species is usually, though not always, brachypterous. The fully winged female appears to be a nearly typical *Ooencyrtus* except that the scutellum is less strongly sculptured, less convex, and less rounded at apex, while the forewing is weakly infuscated medially and the abdomen is a little longer and more robust than usual. The brachypterous females have the scutellum nearly flat, very faintly sculptured, and subacute posteriorly, while the wings vary in length and correspondingly in width, in some specimens barely extending to the apex of the propodeum, but in others attaining the middle of the abdomen. In the majority of individuals the

forewings extend to or a little beyond the apex of the first tergite. The males apparently are always fully winged but differ from typical *Ooencyrtus* by having the funicle of the antenna slightly compressed, the joints subequal, about as broad as long, narrower at base than at apex and clothed with relatively short hairs, none of which is longer than the segments. These differences do not seem sufficient to justify the erection of a new genus for the species, the habits of which agree with those of other species of *Ooencyrtus*.

Fully winged female.—Length 1.6 mm. Head as wide as thorax, with fine, reticulate sculpture; eyes rather large, very sparsely pilose; ocelli small, forming a nearly right-angle triangle; ocellular line slightly longer than diameter of lateral ocellus; width of frons equal to approximately one-third width of head; frontovertex about one and one-third times as long as broad; scrobes moderately impressed, rounded above; cheeks rounded; malar groove distinct but fine; mandibles each with three short subequal teeth; maxillary palpus four-jointed, labial palpus 3-jointed; antennae inserted near anterior margin of face; scape compressed, about four times as long as broad, broadest medially; pedicel subcylindrical, nearly three times as long as broad, about equal in length to first and second funicular segments combined; funicular joints cylindrical or nearly so, the first joint just a little longer than broad and slightly narrower than pedicel; second joint subequal to first; third to sixth joints about as long as broad, the sixth slightly thicker than the first; club cylindrical, not thicker than funicle, about as long as three preceding funicular joints combined and distinctly 3-jointed. Thorax slightly compressed dorsoventrally; mesoscutum distinctly broader than long, weakly convex, weakly reticulated and with numerous small, shallow hair punctures; scutellum low, nearly flat, subtriangular, subacute at apex, a little longer than mesoscutum and with similar reticulate sculpture, but with sparser and less distinct hair punctures; whole dorsum of thorax somewhat shining; propodeum short, weakly reticulately sculptured, without distinct carinae; pleura more strongly sculptured and less shining than mesoscutum. Legs normal, spur of middle tibia about two-thirds as long as first tarsal joint. Forewing extending beyond apex of abdomen, a little more than twice as long as broad; marginal vein a little longer than broad, postmarginal longer than marginal but a little shorter than stigmal, which is about twice as long as marginal; marginal cilia short; discal cilia rather dense and short; oblique hairless streak behind stigmal vein wider posteriorly than anteriorly and complete. Abdomen as long as head and thorax combined, as broad as or a little broader than thorax, rather robust, ovate, weakly reticulately sculptured; ovipositor not exerted. Black, somewhat shining; antennae entirely black; all coxae, anterior and posterior

femora, and posterior tibiae at base black, or blackish; middle femora more or less testaceous mixed with blackish; rest of legs testaceous; forewing weakly infuscated from base to a little beyond middle, hyaline apically; hind wing hyaline.

Brachypterous female.—Like the fully winged female except for the short wings and the fact that the scutellum is even more flattened and more nearly acute posteriorly.

Male.—Length 1.2 mm. Apparently always with fully developed wings, the forewing without infuscation; antennal scape about like that of female; pedicel not much longer than broad and only slightly longer than first funicular joint, pale at apex; funicular joints pale at base, dark at apex, the first funicular joint slightly smaller than the others, all slightly compressed and about as long as broad at apex; club not broader than funicle and about as long as the two preceding joints combined; trochanters, knees, apices of all tibiae, and all tarsi testaceous. Otherwise agreeing with description of female.

Type locality.—Big Horn Mountains, Wyo.

Type.—U.S.N.M. No. 55148.

Remarks.—Described from 71 specimens, all reared in December 1939 from eggs of the Mormon cricket, *Anabrus simplex* Haldeman, collected in the Big Horn Mountains, Wyo., by J. R. Parker and H. J. Schipmen, and consisting of 1 fully winged female (the holotype), 64 brachypterous females, and 6 males (one allotype).